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instrumentation and supply chain
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Beam-Splitters within Optical Coherence Tomography

[Optical Coherence Tomography](#) otherwise known as OCT is an advanced technology used specifically within retinal imaging & analysis. This non-invasive technology was designed to provide highly detailed images of the retina as well as the optic nerve. It uses light waves to take cross-section images of your retina, using OCT it is possible to see each of the retina's distinctive layers.

Within OCT's, a light source with a broad optical bandwidth is used for illumination and is split by a Non-Polarising Beam-Splitter into 2 paths referred to as the reference and sample arms. The light from both the reference and sample arms are reflected back and combined at the detector. An interference effect is seen at the detector in the reference and sample arm only if the time travelled by the light is nearly equal.

Cube Beam-Splitters offer two key advantages over plate Beam-Splitters. The shape of the cube makes the part easier to mount and align in a system and therefore offers superior control when compared to plate types. Additionally, plate Beam-Splitters can exhibit ghost images caused by unwanted light reflecting off the back surface of the plate and can also suffer from dispersion and beam deviation due to incident light passing through the plate at an angle. Knight Optical can offer you custom made [Non-Polarising Beam-Splitter Cubes](#) to meet your requirements for your OCT system.

General Specifications:

Material: [N-BK7 or Equivalent](#); [UV Grade Fused Silica](#)
Dimension Tolerances: +0, -0.02mm
Flatness: $\lambda/4$ over 25mm
Surface Quality: [<40/20 Scratch/Dig](#)
Angles: +/-1 arcmin
Coatings: Typically 50:50; 70:30; 90:10 Ratio Split

Our Beam-Splitter Cubes are checked for quality in our state-of-the-art Metrology laboratory using equipment such as our Trioptics PrismMaster, Varian Cary and our FIBSA Interferometer allowing us to work to the highest [QA standards](#) and meet the tolerance specifications on these **precision components**.

[Contact our technical sales team](#) to discover how Knight Optical's high quality Beam-Splitter Cubes and superior service can improve your instrumentation and supply chain experience.

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